

7-9 October  
2018

INTERNATIONAL  
**S T E M**  
EDUCATION ASSOCIATION

SCIENCE.  
TECHNOLOGY.  
ENGINEERING.  
MATH.

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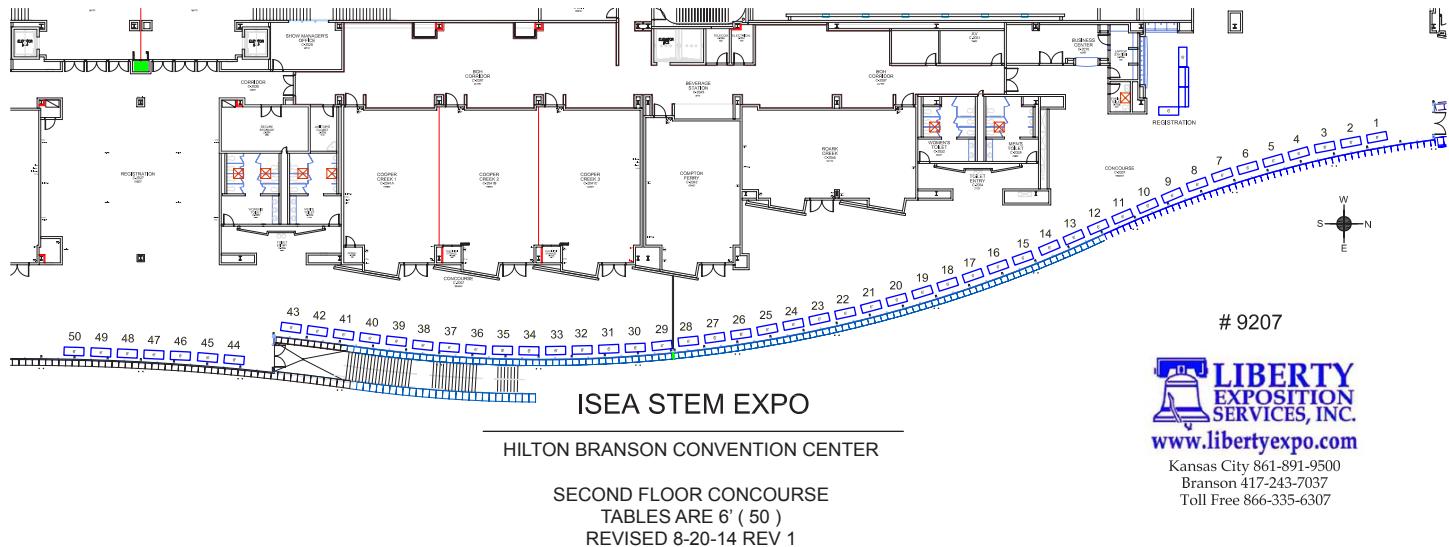


## Conference Schedule

# Welcome

The ISEA STEM Expo Conference is designed to present an exciting working conference where K-12 STEM teachers and administrators can actually engage in a series of targeted STEM projects, activities, and teaching strategies that make STEM education practical and fun in any classroom.

While you are here, we hope that you will connect with other STEM professionals and help us develop a beneficial network of enthusiastic and positive members who want to see STEM education become a reality in classrooms across America. We will be sharing the vision and purpose of ISEA at the opening and closing sessions at this year's conference, so you won't want to miss them. We want our conference and association to be very educational, experiential, and, most of all, fun for all of our attendees.



Kansas City 861-891-9500  
Branson 417-243-7037  
Toll Free 866-335-6307



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## Conference Schedule

### Branson Convention Center Wi-Fi Instructions

1. Connect to Wireless Network BCC\_MTG
2. Open browser
3. When prompted for username and password use the following: **Username:** ISEA2018

**Password:** ISEA2018 (case sensitive)

### Sunday, October 7

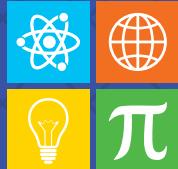
- 11:00 a.m.–6:00 p.m. Exhibitor Setup and Registration  
12:00 p.m.–6:30 p.m. TEECA Student Registration and Events  
2:00 p.m.–5:00 p.m. Pre-Conference Workshops  
4:00 p.m.–6:00 p.m. Conference Attendee Registration  
6:30 p.m. Exhibit Hall Closed

### Tuesday, October 9

- 9:00 a.m.–11:50 a.m. Exhibit Hall Open  
9:00 a.m.–10:20 a.m. Hands-On Workshop Session – Rotation 5  
10:20 a.m.–10:30 a.m. Morning Break  
10:30 a.m.–11:50 a.m. Hands-On Workshop Session – Rotation 6  
11:50 a.m.–1:30 p.m. Lunch Buffet and Closing Award Session  
– Taneycomo Ballroom  
1:30 p.m.–5:00 p.m. Exhibit Teardown

### Monday, October 8

- 7:00 a.m.–8:00 a.m. Conference Attendee Registration  
8:00 a.m.–9:00 a.m. Breakfast and Overview of Conference  
– Taneycomo Ballroom  
9:00 a.m.–11:50 a.m. Exhibit Hall Open  
9:00 a.m.–10:20 a.m. Hands-On Workshop Session – Rotation 1  
10:20 a.m.–10:30 a.m. Morning Break  
10:30 a.m.–11:50 a.m. Hands-On Workshop Session – Rotation 2  
11:50 a.m.–1:30 p.m. Lunch Buffet and Keynote Speaker  
1:30 p.m.–2:50 p.m. Hands-On Workshop Session – Rotation 3  
1:30 p.m.–5:30 p.m. Exhibit Hall Open  
2:50 p.m.–3:00 p.m. Afternoon Break  
3:00 p.m.–4:20 p.m. Hands-On Workshop Session – Rotation 4  
5:00 p.m.–7:00 p.m. Featured Sessions



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## Conference Schedule

**Sunday, October 7**

2:00–5:00 p.m.

### Pre-Conference Workshops:

#### **Engineering with NASA! Presented by John Weis**

Short Creek 1

Incorporating engineering concepts into your classroom is not as hard as you think! Come join in a discussion of the engineering design process and participate in hands-on examples of a number of grade-appropriate NASA activities utilizing this process. The discussion will include adaptation to specific subject areas and modifications for accommodation.

#### **Get and Learn to Use a 3D Printer - Let's Do It! Presented by Michael Allen**

(advanced registration and additional fee required)

Short Creek 2

This session will be a hands-on introduction to 3D printing in the classroom. We'll cover how to operate and troubleshoot your new printer and go over 3D printing lesson plans from the PrintLab Portal! Please bring a Windows or Mac laptop with admin privileges to install and operate the software for the printer.

#### **Provided Technology**

NWA3D A5 3D Printer (5 x 6 x 4" print area, our most popular printer and great for integrating 3D printing into your curriculum), 3 colors of filament, 3D printing tool kit, and one year access to the PrintLab K-12 Lesson Plan Portal, a \$918.95 total value!



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The Technology and Engineering Education Collegiate Association will host the TEECA Southwest Regional Competitions at the ISEA Conference. Future STEM teachers will be participating in a variety of competitions throughout the ISEA Conference. Make sure to stop by to watch these creative young educators as they prepare to teach STEM education in the near future.

### Sunday, October 7

Time	Event	Room
12:00–12:30 p.m.	TEECA Welcome	Compton Ferry
12:30–5:00 p.m.	“Live” Manufacturing	Exhibit Hall
1:00–2:00 p.m.	Robotics Competition	Exhibit Hall
2:00–3:00 p.m.	Teaching Lesson Contest	Cooper Creek 2
3:00–4:30 p.m.	STEM Problem Solving Challenge	Cooper Creek 1
5:30–6:30 p.m.	Technology Challenge (Quiz Bowl)	Roark Creek

### Monday, October 8

2:30–3:30 p.m.	STEM Showcase Lightning Sessions>Showcase Exhibits	Exhibit Hall
5:00 p.m.	“Live” Communication	ISEA Registration Booth
5:00 p.m.	“Live” Photography	ISEA Registration Booth
5:00 p.m.	Transportation Challenge Competition	Exhibit Hall



### Tuesday, October 9

11:50 a.m.–1:30 p.m.	TEECA Awards Ceremony	Taneycomo Ballroom
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## Conference Schedule

### Monday, October 8

8:00–8:50 a.m.

#### Breakfast Buffet and Opening Session

Taneycomo Ballroom (Lower Level of the Convention Center)

### Monday, October 8

9:00–10:20 a.m.

#### ROTATION 1

#### Workshop Sessions

Some sessions will be repeated, allowing attendees more opportunities to attend the session of their choice.

Location	Workshop Titles
Bee Creek	Awesome 3D Printing Tips, Ideas, and Real Classroom Projects
Boston Ferry	Mathematics with a NASA Twist
Compton Ferry	Turning STEM into STREAM: Pitsco Mission STREAM
Cooper Creek 1	STEM 2.0: Beyond the Build
Cooper Creek 2	Graphing: How, Where and Why
Cooper Creek 3	STEM-ulating Activities on Human Ecology
Fall Creek	Everyday STEM for the Busy Teacher
Roark Creek	Easy STEM Integration with NASA Resources
Short Creek 1	Observing Effects of Hands-on Activities in Improving Confidence and Content Knowledge in Middle School Teachers
Short Creek 2	Science, it's Electric!
Short Creek 3	Robot Maze Runner
Short Creek 4	Creating Early PreK-8th STEM Engagement to Bridge Gaps in Exposure to Innovation



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## Conference Schedule

### Monday, October 8

10:30–11:50 a.m.

### ROTATION 2

#### Workshop Sessions

Some sessions will be repeated, allowing attendees more opportunities to attend the session of their choice.

Location	Workshop Titles
Bee Creek	Elementary STEM Resources
Boston Ferry	Fairy-Tale Problems!
Compton Ferry	Gravity Jousting: A Medieval STEM Challenge
Cooper Creek 1	NearPod: Engaging, Creating, Assessing
Cooper Creek 2	Awesome Phenomena
Cooper Creek 3	Who Says STEM Has to be Indoors? How to Take Your Lessons Outside
Fall Creek	Fun Weird Science
Roark Creek	Easy STEM Integration with NASA Resources
Short Creek 1	Engineering Thinkers: How to Develop Effective Questioning In a STEM Classroom
Short Creek 2	Science, It's Electric!
Short Creek 3	UPS Challenge
Short Creek 4	Integrated STEM Projects with Robotics and Web Development: Exposing Students to Advanced Computer Coding in High School

### Monday, October 8

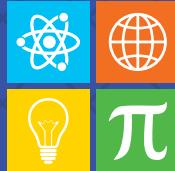
11:50 a.m.–1:30 p.m.

#### Lunch Session and Keynote Speaker: Laura Spence

Taneycomo Ballroom (Lower Level of the Convention Center)



In a rapidly changing and competitive world that is results driven, who has the time to explore failure? To meet the needs of students entering the global workforce, science, technology, engineering and mathematic content serve as an ideal platform for students to explore risk and failure. Conquer failure by learning to leverage the power of their STEM mistakes. Come learn about how Laura Spence adapted the word failure and turned it into a positive for her district-wide STEM Academy program. You'll also learn about the common challenges associated with mistakes and the practical applications to problem-based learning.



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## Conference Schedule

**Monday, October 8**

1:30–2:50 p.m.

**ROTATION 3**

### Workshop Sessions

Some sessions will be repeated, allowing attendees more opportunities to attend the session of their choice.

Location	Workshop Titles
Bee Creek	Astronomy and Space Science: Measuring The Orbital Motion of the Earth and Moon with Simple Tools
Boston Ferry	Fairy-Tale Problems!
Compton Ferry	Engineered For Success: Robotics, Coding, and Your Classroom
Cooper Creek 1	Real World Science
Cooper Creek 3	Who Says STEM Has to be Indoors? How to Take Your Lessons Outside
Fall Creek	Robots on the Move
Roark Creek	Magnetic Levitation
Short Creek 1	Integrated Project Based Instruction “STEM” Initiative: A P-B and Secondary Pre-Service Teacher Candidate Program
Short Creek 3	STEM 3-5: Simple Machines, Electricity, and Magnetism and Much More
Short Creek 4	Programmable Circuits: Outreach Model to Bridge The Curriculum Gap with a Hands-On Interdisciplinary Workshop



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## Conference Schedule

### Monday, October 8

3:00–4:20 p.m.

### ROTATION 4

#### Workshop Sessions

Some sessions will be repeated, allowing attendees more opportunities to attend the session of their choice.

Location	Workshop Titles
Boston Ferry	Developing STEM Identity and Technology Fluency with Rokenbok Education
Compton Ferry	Elementary Coding with KUBO
Cooper Creek 1	Real World Science
Cooper Creek 2	Programming for the CTE Classroom
Cooper Creek 3	Using Robotics to Engage Middle School Students in Integrated STEM Learning
Fall Creek	Modeling the Environmental Impacts of Improper Solid Waste Disposal in the Virgin Islands
Roark Creek	Low-Cost, High-Impact Elementary STEM
Short Creek 2	3D Printing in the Elementary Classroom
Short Creek 3	Building the Path for STEM Success
Short Creek 4	Programmable Circuits: Outreach Model to Bridge The Curriculum Gap with a Hands-On Interdisciplinary Workshop

### Monday, October 8

5:00–7:00 p.m.

#### Featured Sessions:

##### Design Thinking in Integrated STEM Education Presented by Todd Kelley and Geoff Knowles

Compton Ferry

This extended conference session will prepare teachers to effectively implement key strategies to improve students' design thinking skills within integrated STEM lessons. Participants will learn about approaches to improve students' design skills while also addressing the Standards for Technological Literacy, the Next Generation Science Standards, and 21st Century Skills.

##### STEM Lets Do It! Presented by Scott Bartholomew (advanced registration and additional fee required)

Taneycomo Ballroom

During this featured session, participants will be taught the basics of quadcopters (flight, how to operate, maintenance) and introduced to the Hubsan X4. Additionally, participants will be introduced to 4 unique engineering design challenges which can be done with students and the Hubsan X4. Each participant will practice flying and engage in at least one of the design challenges during the session. Additional cost associated.



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## Conference Schedule

**Tuesday, October 9**

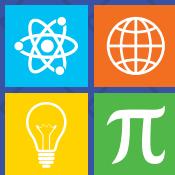
9:00–10:20 a.m.

**ROTATION 5**

### Workshop Sessions

Some sessions will be repeated, allowing attendees more opportunities to attend the session of their choice.

Location	Workshop Titles
Bee Creek	Where Do You Even Begin? Tips and Tricks on how to Develop and Implement STEM at the District, School, and Classroom Levels
Boston Ferry	Developing and Assessing Integrated STEM Learning Outcomes in Green Homes Project Focusing on Energy Conservation
Compton Ferry	STEM/STEAM in Motion for PK-2
Cooper Creek 1	Navigating the NGSS: Building Your Science Curriculum from Scratch
Cooper Creek 2	Triangles, Rectangles, Circles, too, Letters and Numbers, Look What You Can Do! Early Childhood STEM!
Cooper Creek 3	The Complete STEM Program For Your School
Fall Creek	Using Big Data To Investigate Ecological and Oceanographic Phenomena in Middle School, High School, and Undergraduate Classes
Roark Creek	Heading EAST: The Direction of Growing Students
Short Creek 1	Partners Make STEM Nights Best
Short Creek 2	STEM Takes Flight



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## Conference Schedule

### Tuesday, October 9

10:30–11:50 a.m.

#### ROTATION 6

##### Workshop Sessions

Some sessions will be repeated, allowing attendees more opportunities to attend the session of their choice.

Location	Workshop Titles
Bee Creek	Playing With Probes
Boston Ferry	Eat to Beat Campaign for Critically Conscious Community-Based STEM Learning
Compton Ferry	STEAM It Up! K-12
Cooper Creek 1	Inspiring Inquiry: Utilizing A FABLAB Makerspace At A K-6 STEAM Elementary
Cooper Creek 2	Triangles, Rectangles, Circles, too, Letters and Numbers, Look What You Can Do! Early Childhood STEM!
Cooper Creek 3	The Complete STEM Program For Your School
Roark Creek	Growing Students through Community Involvement

### Tuesday, October 9

11:50 a.m.–1:30 p.m.

##### ISEA Awards and Recognition Luncheon

Taneycomo Ballroom

The ISEA STEM Expo will conclude with a wonderful luncheon buffet for all attendees and exhibitors. Recipients of the prestigious Mike Neden STEM Champion Award, ISEA STEM School of Excellence Award, and Max E. Lundquest Rising Star STEM Educator Award will be recognized during this session.



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### ISEA Photo Booth

Thank you, Epic Exhibits, LLC for sponsoring the **#ISEASTEM2018** Photo Booth!

Don't forget to take your picture, with fun STEM props, at the Photo Booth during the conference. Use **#ISEASTEM2018** in your social media posts to be entered to win a \$50 gift card!

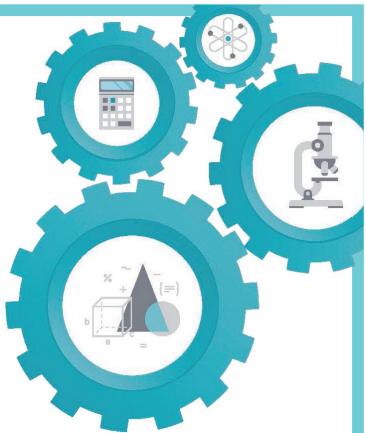
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## Conference Schedule

**Monday, October 8**

9:00–10:20 a.m.

**ROTATION 1**

Presenters	Title & Room	Description
Michael Allen	<b>Awesome 3D Printing Tips, Ideas, and Real Classroom Projects</b> Bee Creek	Attendees will learn about 3D Printing, 3D design, mechanical troubleshooting, PBL, technology integration into non-STEAM fields, as well as student engagement
John Weis	<b>Mathematics with a NASA Twist</b> Boston Ferry	Hands-on mathematics activities with real-life applications help students to learn and reinforce key concepts while having fun. Participants will be made aware of multiple mathematics resources available from NASA at little to no charge. Activities will emphasize practical applications of graphing, statistics and manipulation of algebraic equations.
Aaron Cicero	<b>Turning STEM into STREAM: Pitsco Mission STREAM</b> Compton Ferry	Attendees will learn about the Pitsco Mission STREAM program and how it is used in an elementary setting. Attendees will become familiar with each mission that is offered in the program and have the chance to go through part of a mission as well as a briefing/reading and an exploration.
Beverly Dillard Beth Childers	<b>STEM 2.0: Beyond the Build</b> Cooper Creek 1	In this session, we will put a “fresh spin” on how today’s teachers must think about STEM education and its place in every content area. Through hands-on, interactive activities, attendees will develop a new understanding of what STEM instruction means in a 21st century classroom and how it can be integrated into existing standards. No more “random acts of STEM”! Opportunity will be provided for participants to share and collaborate on STEM integration for their own lessons.



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## Conference Schedule

**Monday, October 8**

9:00–10:20 a.m.

**ROTATION 1**

Presenters	Title & Room	Description
Susan Johnson Stacy Allen	<b>Graphing: How, Where and Why</b> Cooper Creek 2	This session will show teachers how to graph correctly and how to have students analyze the data. The session begins with an activity that generates a graph that can be used K-12. Teachers will learn about: dependent and independent variables, a proper title, scaling, when to use each type of graph (bar, line, and pie), and how to interpolate and extrapolate data. Discussions will include how to incorporate graphing into the curriculum and how to develop activities that generate data.
Deborah Wilson	<b>STEM-ulating Activities on Human Ecology</b> Cooper Creek 3	In this hands-on workshop, participants will participate in activities that illustrate the science and math behind real-world issues. Strategies presented include creating representational models, group problem-solving challenges, graphing and analysis, and role-playing simulations. Participants will receive activity instructions, data charts and background reading that links each presented activity with Next Generation Science Standards and Common Core Standards for Mathematics.
Byron McKay Tracy Rampy	<b>Everyday STEM for the Busy Teacher</b> Fall Creek	Learn, see, do, and teach. Participants will complete two hands-on STEM activities and take home the knowledge, skills, and tools they need to engage their students with the projects at school starting tomorrow.
Joan Harper-Neely	<b>Easy STEM Integration with NASA Resources</b> Roark Creek	NASA is committed to attracting and retaining students in STEM disciplines. To support teachers in all grade levels, NASA has developed resources that highlight the application of science and math in the development of technologies used to learn about Earth and explore the universe. This workshop session will use NASA technologies to engage teachers in hands-on activities and engineering challenges.



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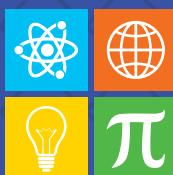
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**Monday, October 8**

9:00–10:20 a.m.

**ROTATION 1**

Presenters	Title & Room	Description
Zach Hurdle	<b>Observing Effects of Hands-on Activities in Improving Confidence and Content Knowledge in Middle School Teachers</b> Short Creek 1	This presentation will focus on lessons in the fields of statistics and geometry. Participants will learn about volume misconceptions, probability predictions, direct and inverse relationships (particularly with graphing), statistical sampling, and box-and-whisker plots through a hands-on approach. In particular for this conference, not only will initial findings be discussed, but the five hands-on activities themselves can be on display and/or actively used by participants.
Karen Evans Elizabeth Jimenez	<b>Science, it's Electric!</b> Short Creek 2	This session is mainly hands on. It is geared toward working with children aged 4-12 but could be adapted for older students. Since the session is entirely about strategies to teach about current, circuitry, and wiring, the relationship to STEM education is clear. All activities will be interactive and participants will be taking on the role of students by investigating, recording, and discussing findings in small groups.
Dan Farnam	<b>Robot Maze Runner</b> Short Creek 3	Robot Maze Runner will expose students to coding. Participants will collaborate together to code Edison 2.0, an incredible tool that keeps students engaged and ambitious to learn more.
Laura Leibman	<b>Creating Early PreK-8th STEM Engagement to Bridge Gaps in Exposure to Innovation</b> Short Creek 4	We will discuss the impact mentors have in efforts to bridge the gap in invention through inclusion of all races, genders, ages, and social economic status to find lost Einsteins. Community involvement is very important in STEM integration through elementary, secondary, post-secondary schools, parents, and local businesses. We will then discuss how to make STEM education fun and integrated through hands-on, well-rounded, problem and inquiry-based learning, that focuses on 21st Century skills, innovation, and invention.



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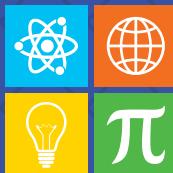
## Conference Schedule

**Monday, October 8**

10:30–11:50 a.m.

**ROTATION 2**

Presenters	Title & Room	Description
Charlotte Holter	<b>Elementary STEM Resources</b> Bee Creek	Participants will learn about STEM resources available from the Elementary STEM Council of the International Technology and Engineering Educators Association. Participants will learn about services such as webinars and books to briefs, resources such as STEM journals, and sample STEM learning activities.
Stephanie Klixbull	<b>Fairy-Tale Problems!</b> Boston Ferry	This presentation will focus on STEM for an early childhood classroom. The session will focus around the idea of “tinkering”. Students use guided materials to help them solve a realistic problem. The idea of tinkering is to help foster young students how to solve a problem on their own. During the session, I will show a curriculum unit as evidence of tinkering and through Fairy-tale stories, students are able to relate to these realistic problems.
Bill Holden	<b>Gravity Jousting: A Medieval STEM Challenge</b> Compton Ferry	The Gravity Jousting activity is an engineering challenge. Students use both offensive and defensive strategies in engineering a gravity vehicle that will pop a competitor’s balloon while keeping their balloon intact. The activity covers the entire STEM spectrum, teachers can focus on specific concepts that correlate with academic concepts covered—or the activity can be a stand-alone competition that engages students and creates the answer to “why do we need to study this?”
Beverly Dillard Beth Childers	<b>NearPod: Engaging, Creating, Assessing</b> Cooper Creek 1	In this session, we will be integrating and unpacking NearPod as a lesson. Technology for technology’s sake is not what we need in our classrooms; NearPod is technology that takes instruction to the next level. Seamlessly combining virtual field trips, interactive collaboration and formative, immediate assessments, NearPod is technology that enhances- rather than replaces- current instruction. We will present the tools available and offer support to create your own NearPod lesson.



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## Conference Schedule

**Monday, October 8**

10:30–11:50 a.m.

**ROTATION 2**

Presenters	Title & Room	Description
Susan Johnson Stacy Allen	<b>Awesome Phenomena</b> Cooper Creek 2	The Next Generation Science Standards require teachers to engage students in making sense of phenomena, yet most teachers haven't experienced. We will model for the teachers a variety of simple, engaging phenomena that they can use with their students. The phenomena will reflect a wide range of science content and grade levels (K-AP) Participants will engage with the phenomena and discuss the multiple ways each can be used, and how to develop their own.
Karina K. R. Hensberry Samantha Teehan	<b>Who Says STEM Has to be Indoors? How to Take Your Lessons Outside</b> Cooper Creek 3	In this session, participants will experience an integrated, hands-on STEM unit and make generalizations about the pedagogy behind the unit that can be applied to other STEM-based lessons. We will also share our experiences leading STEM lessons outside and the impact outdoor education can have on teachers and students. We will then draw conclusions from this work and provide attendees with tips for engaging their own students in STEM lessons outdoors.
Ronnie Thomas	<b>Fun Weird Science</b> Fall Creek	Take part in this opportunity to interact with fun, weird science strategies as we model engaging hands-on learning experiences guaranteed to keep your scholars hooked. Participants will benefit from and engage in a variety of STEM-based activities designed for use as lesson hooks, driving focus and/or extensions. Session topics to include but not limited to chemical reactions, force and motion, heat energy, polymers, aeronautics and life cycles.
Joan Harper- Neely	<b>Easy STEM Integration with NASA Resources</b> Roark Creek	NASA is committed to attracting and retaining students in STEM disciplines. To support teachers in all grade levels, NASA has developed resources that highlight the application of science and math in the development of technologies used to learn about Earth and explore the universe. This workshop session will use NASA technologies to engage teachers in hands-on activities and engineering challenges.



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## Conference Schedule

**Monday, October 8**

10:30–11:50 a.m.

**ROTATION 2**

Presenters	Title & Room	Description
Kim Wilson Jennifer Saylor	<b>Engineering Thinkers: How to Develop Effective Questioning In a STEM Classroom</b> Short Creek 1	Teachers will learn how to differentiate between ineffective and effective questioning by taking part in numerous interactive activities. Techniques will focus on questioning that leads students to develop scientific explanations. Through hands-on experiences and collaboration, attendees will be provided with opportunities that allow them to develop and utilize questioning strategies at each stage of the Engineering Design Process.
Karen Evans Elizabeth Jimenez	<b>Science, it's Electric!</b> Short Creek 2	This session is mainly hands on. It is geared toward working with children aged 4-12 but could be adapted for older students. Since the session is entirely about strategies to teach about current, circuitry, and wiring, the relationship to STEM education is clear. All activities will be interactive and participants will be taking on the role of students by investigating, recording, and discussing findings in small groups.
Dan Farnam	<b>UPS Challenge</b> Short Creek 3	UPS Challenge will expose students to coding and the Parrot Mambo Drone. Participants will collaborate together to code the Parrot Mambo Drone, an incredible tool that keeps students engaged and prepares them for their future possibilities.
Chris Pyley, Keith Smith Sr., Cassandra King, Michael Henry	<b>Integrated STEM Projects with Robotics and Web Development: Exposing Students to Advanced Computer Coding in High School</b> Short Creek 4	Attendees will view websites and past artifacts for the course, discuss web design as a conduit for an integrated STEM project, use the Sphero Robotic Ball and an iPad to develop robotic coding that will move the robot through a maze, and apply mathematics using the robot.



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## Conference Schedule

**Monday, October 8**

1:30–2:50 p.m.

**ROTATION 3**

Presenters	Title & Room	Description
Dan Barth	<b>Astronomy and Space Science: Measuring The Orbital Motion of the Earth and Moon with Simple Tools</b> Bee Creek	This is a hands-on lesson that shows teachers how to help students take real measurements of the Moon in the night sky and then use those measurements to develop student skills and confidence in accurate observation and testing hypotheses. The activity can be done conceptually (almost no math), or mathematics can be added from basic arithmetic to AP level calculations.
Stephanie Klixbull	<b>Fairy-Tale Problems!</b> Boston Ferry	This presentation will focus on STEM for an early childhood classroom. The session will focus around the idea of “tinkering”. Students use guided materials to help them solve a realistic problem. The idea of tinkering is to help foster young students how to solve a problem on their own. During the session, I will show a curriculum unit as evidence of tinkering and through Fairy-tale stories, students are able to relate to these realistic problems.
Preston Frazier	<b>Engineered For Success: Robotics, Coding, and Your Classroom</b> Compton Ferry	Participants will engage in a series of open-ended problem-solving activities to explore coding and apply the engineering design process using TETRIX PRIME, an intuitive robotics system developed by Pitsco Education, an industry-leading provider of hands-on STEM resources. Participants will learn a variety of implementation strategies and best practices for integrating hands-on robotics in their classroom to meet a variety of Common Core and Next Generation Science standards.
Amber Kirby and Sarah Gurney	<b>Real World Science</b> Cooper Creek 1	Examine how STEM professionals solved problems in WWII. Using stories from the war to add background, Real World Science is a curriculum for elementary and middle school that emphasizes science, literacy, and problem solving. Hands-on activities aligned to NGSS will be used in this session such as examining assembly lines. Participants will receive a copy of the Real World Science curriculum guide.



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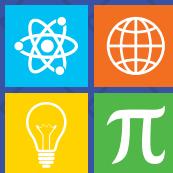
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Karina K. R. Hensberry Samantha Teehan	<b>Who Says STEM Has to be Indoors? How to Take Your Lessons Outside</b> Cooper Creek 3	In this session, participants will experience an integrated, hands-on STEM unit and make generalizations about the pedagogy behind the unit that can be applied to other STEM-based lessons. We will also share our experiences leading STEM lessons outside and the impact outdoor education can have on teachers and students. We will then draw conclusions from this work and provide attendees with tips for engaging their own students in STEM lessons outdoors.
Ronnie Thomas	<b>Robots on the Move</b> Fall Creek	Robots on the Move - Can your scholar speak the language of industry. There are over 600,000 high paying technology jobs open across the U.S., and by 2018, 51 percent of all STEM jobs are projected to be in computer-related fields. Join this session and program Sphero the exhilarating robotic ball, use programming to purposefully and strategically move the ball to complete a maze.
Megan Sagely Clair Green	<b>Magnetic Levitation</b> Roark Creek	Participants will work with physics as they build maglev locomotives. Magnetic levitation is a technology that is not used in the United States, but is used in other countries. This is a good opportunity to discuss different technologies and how to incorporate them into our daily lives. The locomotives will be made through an engineering design process with sketches, trial runs, and a finished product. The weight, balance, and measurements of the locomotives will have to be adjusted to run.
Eric L. Deneault Kim M. Stewart	<b>Integrated Project Based Instruction “STEM” Initiative: A P-B and Secondary Pre-Service Teacher Candidate Program</b> Short Creek 1	To provide an in depth look into the integrated Project Based Instruction (PBI) Science, Technology, Engineering, & Mathematics (STEM) Initiative that is shaping the future of pedagogy. How Fort Hays State University is preparing pre-service teacher candidates to be successful in a STEM enriched environment through the development of PBI lessons and the implementation of technology while integrating the core principles of STEM.



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Cindy Jones	<b>STEM 3-5: Simple Machines, Electricity, and Magnetism and Much More</b> Short Creek 3	Discover a unique combination of kinesthetic learning and STEM concepts in an exciting academic environment in-motion. These programs incorporate simple machines, magnetism, electricity, math, and engineering, in a kinesthetic approach to maximize comprehension of learning academic concepts in the classroom or the gym.
Lori Sheetz Sam Ivy	<b>Programmable Circuits: Outreach Model to Bridge The Curriculum Gap with a Hands-On Interdisciplinary Workshop</b> Short Creek 4	Our Programmable Circuits workshop gives students insight into the machines they use every day and bridges this gap between building circuits and programming them to perform tasks. In this session, faculty will review circuit components, then participants will work in teams learning how to read and edit code needed for their projects. The teams will complete flashing SOS light and distance detector projects. Students demonstrate active learning by editing the code to modify their projects.



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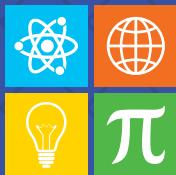
## Conference Schedule

**Monday, October 8**

3:00–4:20 p.m.

**ROTATION 4**

Presenters	Title & Room	Description
Ryan Neden, Byron McKay, Zach Sachs	<b>Developing STEM Identity and Technology Fluency with Rokenbok Education</b> Boston Ferry	This workshop will provide educators an opportunity to get hands-on with Rokenbok PK-8 curriculum and engineering materials. Workstations will be set up throughout the room for educators to explore STEM concepts (e.g. Spatial Reasoning, Applied Mathematics, Simple to Compound Machines, 3D Modeling & Printing, & Robotics) using Rokenbok materials and resources.
Kristina Davis	<b>Elementary Coding with KUBO</b> Compton Ferry	KUBO is a simple plug-and-learn robot that makes teaching coding easy. In this session, teachers work together and use the unique Tag Tile system to physically piece together code for a robot to execute on a coordinating map. Designed for K-2 learners, KUBO is tangible, intuitive, and completely screenless – making it easy for teachers to adopt, while offering younger students a social and hands-on opportunity to learn basic coding concepts and skills during early childhood development.
Amber Kirby Sarah Gurney	<b>Real World Science</b> Cooper Creek 1	Examine how STEM professionals solved problems in WWII. Using stories from the war to add background, Real World Science is a curriculum for elementary and middle school that emphasizes science, literacy, and problem solving. Hands-on activities aligned to NGSS will be used in this session such as examining assembly lines. Participants will receive a copy of the Real World Science curriculum guide.
Ethan Applegate Morgan Jones	<b>Programming for the CTE Classroom</b> Cooper Creek 2	Attendees in this session will be introduced to the capabilities of open-source Arduino programming, and how easily it can be incorporated into schools. By the end of the presentation and building activity, participants will be able to incorporate programming into CTE, engineering, science, and math classrooms. Participants will build and program a functioning robot utilizing open-sources. This activity will incorporate all aspects of STEM.



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**ROTATION 4**

Presenters	Title & Room	Description
Jaynae Williams Shana Gilbert	<b>Using Robotics to Engage Middle School Students in Integrated STEM Learning</b> Cooper Creek 3	We will launch with a discussion of the Robotics Program and video testimonials by several local students, statistical background and relevance of the program. We will continue with a hands-on activity from the Learning Modules in Hour of Code and simple commands. The activity will demonstrate math and science content along with programming and engineering skills. Next, we work on what a lesson would look like in a classroom with attendees performing a demo.
Steve Lawrence, Ann Marie Gibbs, Celil Ekici, Andre Pompey, Michael Henry	<b>Modeling the Environmental Impacts of Improper Solid Waste Disposal in the Virgin Islands</b> Fall Creek	Participants will get a chance to test some of the soil samples to determine if toxic heavy metals are present. Hopefully, this session will foster dialogue in getting teachers to try project based learning. I will discuss the future direction of this project. It will focus on statistical mathematical modeling, color production statistics, color intensity, and using spectroscopy.
Michael K. Daugherty Vinson Carter	<b>Low-Cost, High-Impact Elementary STEM</b> Roark Creek	Participants will be presented with ideas for developing paper engineering design challenges at the elementary level. Participants will work in small teams to solve a design problem using paper pop-ups, levers, linkages, and simple mechanisms that they can later replicate in their own classrooms. Participants will practice using low-cost or no-cost materials to solve problems that address concepts in STEM, social studies, and English language arts.
Byron McKay Carter Stolberg	<b>3D Printing in the Elementary Classroom</b> Short Creek 2	A hands-on look at how 3D printing can be used effectively in the elementary classroom. Participants will complete a design challenge and learn tips on bringing 3D printing to their classroom.



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## Conference Schedule

**Monday, October 8**

3:00–4:20 p.m.

**ROTATION 4**

Presenters	Title & Room	Description
Gelyn R. Cornell	<b>Building the Path for STEM Success</b> Short Creek 3	Attendees will learn how elementary and intermediate schools build and support middle school STEM education. Attendees will acquire effective STEM strategies that build on students' early interest and experiences while engaging them in design challenges that help solve real-world problems. In addition, all participants will have access to resources for STEM implementation in the classroom.
Lori Sheetz Sam Ivy	<b>Programmable Circuits: Outreach Model to Bridge The Curriculum Gap with a Hands-On Interdisciplinary Workshop</b> Short Creek 4	We will explain the outreach model the Center for Leadership and Diversity in STEM uses to engage students in interdisciplinary learning. Participants are encouraged to roll their sleeves up and ask questions as they work through one of our workshops, Programmable Circuits. Students learn the basics of electricity and circuits as part of their upper elementary curriculum.



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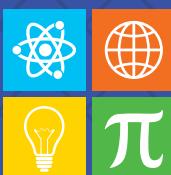
## Conference Schedule

**Tuesday, October 9**

9:00–10:20 a.m.

**ROTATION 5**

Presenters	Title & Room	Description
Laura Spence	<b>Where Do You Even Begin? Tips and Tricks on how to Develop and Implement STEM at the District, School, and Classroom Levels</b> Bee Creek	The presenter will share how they established a K-12 STEM initiative at the district, school and classroom levels that impacts more than 5,300 students. Suggestions, ideas and outlines will be shared that support the implementation of STEM at any role the attendee serves within their own educational community. Tips and tricks will be provided to help guide attendees to begin to think about resources they currently have and how to support STEM innovation and creativity on a larger scale.
Celil Ekici Janet Bernard, Ann Louise Wilkins	<b>Developing and Assessing Integrated STEM Learning Outcomes in Green Homes Project Focusing on Energy Conservation</b> Boston Ferry	Green Homes represents an exemplary STEM teaching in the Virgin Islands and is being used for STEM teacher training and mentoring. With support from the VI Institute for STEM Education, Research, and Practice (ISERP) and a Professional Learning Community (PLC) of teachers, the Green Home Project provides a thematic interdisciplinary expansion of Project Based Learning beyond traditional classrooms providing an integration of math, science and social science studies.
Cindy Jones	<b>STEM/STEAM in Motion for PK-2</b> Compton Ferry	The session will integrate movement into the STEAM subjects and provide a fun robust learning experience to enhance comprehensive learning in a holistic approach. Students enjoy getting out of their seat and on their feet to learn. And this is a great way to address different learning styles of the students.
Garrett Lowder Ryan Mahn	<b>Navigating the NGSS: Building Your Science Curriculum from Scratch</b> Cooper Creek 1	In this session, participants at any level can learn how our school has created an environment highlighting 21st Century skills and improved scientific literacy through the implementation of the NGSS. Participants will develop a better understanding of the three-dimensionality of the standards, as well as how they can benefit them across the curriculum. They will view sample curriculum guides used to help break down standards into student learning objectives, as well as how to backwards-design curriculum that supports a project-based focus.



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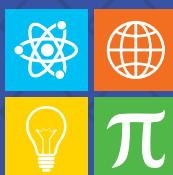
## Conference Schedule

**Tuesday, October 9**

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**ROTATION 5**

Presenters	Title & Room	Description
Mary Yankosky-Amtsberg	<b>Triangles, Rectangles, Circles, too, Letters and Numbers, Look What You Can Do! Early Childhood STEM!</b> Cooper Creek 2	This hands-on workshop will allow participants to explore the tenets of STEM within the early childhood classroom, as well as how to create and integrate STEM activities using developmentally appropriate practices. During a “make and take” portion of the session, shapes, letters, and numbers will “come alive” and will allow participants to immerse themselves in and experience firsthand, multi-disciplinary, multi-sensory developmentally appropriate STEM activities.
Joe Moseley	<b>The Complete STEM Program For Your School</b> Cooper Creek 3	The presentation will review the specific programs, curriculum, and activities that our school has selected (why they were selected and how each specifically addresses the strategic STEM plan) to meet our teaching goals. The interactive part of the program will be an open forum discussion of specific programs and lessons. The school should begin with a STEM philosophy and a strategic plan that addresses both learning and program goals.
Georgianna Saunders	<b>Using Big Data To Investigate Ecological and Oceanographic Phenomena in Middle School, High School, and Undergraduate Classes</b> Fall Creek	Participants in this session will explore the curricula available through the Oceans of Data website and the NOAA data in the classroom graphing tool for their system wide monitoring program data. Discussion will focus on instructional designs that are effective and ineffective when using online databases with students in middle school, high school and undergraduate university science courses.
Alicia Humbard, Amy Bell	<b>Heading EAST: The Direction of Growing Students</b> Roark Creek	In response to our non-traditional methods, the EAST growth model was developed over time to identify and promote growth in individual students. The secret ingredient is the specific student's passion and interest. We didn't reinvent the wheel, we just reshaped it. We would love to share our pedagogical methods that are easily incorporated into any curriculum. We'll shamelessly brag about our students while we cover the history of how we got to this point, our core beliefs, and the magical Gift of Time.



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**ROTATION 5**

Presenters	Title & Room	Description
Jessica Pianalto, Christel Thompson	<b>Partners Make STEM Nights Best</b> Short Creek 1	Partners make STEM nights the best! An elementary STEM night doesn't have to cost a lot or require endless hours of teacher prep. In this session, we will share what Pyron Elementary did to have an exceptional STEM night. Participants will also complete one of our STEM night challenges and take it home.
Wade Ward	<b>STEM Takes Flight</b> Short Creek 2	Introducing your students to coding can be easy and fun. The DJI Tello uses Scratch, the MIT program designed to teach students how to code. By utilizing block-based coding, students can move blocks containing different flight commands to create specific flight patterns. The ability to create variable flight plans allows users to use mathematical equations to solve complicated problems involving multiple variables that allow the creation of polygons in mid-air.



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## Conference Schedule

**Tuesday, October 9**

10:30–11:50 a.m.

**ROTATION 6**

Presenters	Title & Room	Description
Susan Johnson Stacy Allen	<b>Playing With Probes</b> Bee Creek	In this workshop, participants will be introduced to Vernier's LabQuest 2 and a variety of probes. Several stations will be set up around the room for teachers to practice using the equipment and probes to see how it could be incorporated into their classroom. NOTE: Stacy and I don't work for Vernier and will not receive any benefits from Vernier for conducting this workshop. We just know that lots of teachers have this equipment and aren't using it.
Resa Gordon, Celil Ekici, Nora Santana, Ismael Rosado Jr., Chris Plyley	<b>Eat to Beat Campaign for Critically Conscious Community-Based STEM Learning</b> Boston Ferry	During this workshop the STEM educators will discuss effective methods of guiding students through positive research interviews, productive research, and procedures for inviting collaborating partners to a project, and best approach in introducing a new product in the marketplace. The workshop will focus on relevant secondary STEM content for the invasive lionfish and ciguatera, harvesting invasive lionfish, and studies of lionfish in the marketplace.
Cindy Jones	<b>STEAM It Up! K-12</b> Compton Ferry	STEAM-It-Up is a program for any grade level that wants to add STEAM-excitement to their program. The activities and lessons offer a creative learning environment that will add to any classroom. Attendees will receive and explore how effective paper, straws, toothpicks, milk cartons, and popsicle sticks can fit multiple STEM areas and receive numerous ideas and design briefs. Join us and see how STEAM-It-Up can be implemented in your classroom. Design Briefs will be available.
Ryan Mahn	<b>Inspiring Inquiry: Utilizing A FABLAB Makerspace At A K-6 STEAM Elementary</b> Cooper Creek 1	In this session, we'll journey through the creation of a FABLAB makerspace at a K-6 STEAM elementary. As we move through this process, we'll also highlight other projects happening at John Thomas School of Discovery including the creation of a Farmer's Market, a gardening program, raising 20 chickens, and managing 300 gallons of saltwater aquariums – ALL LED BY STUDENTS!



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Joe Moseley	<b>The Complete STEM Program For Your School</b> Cooper Creek 3	The presentation will review the specific programs, curriculum, and activities that our school has selected (why they were selected and how each specifically addresses the strategic STEM plan) to meet our teaching goals. The interactive part of the program will be an open forum discussion of specific programs and lessons. The school should begin with a STEM philosophy and a strategic plan that addresses both learning and program goals.
Alicia Humbard, Amy Bell	<b>Growing Students through Community Involvement</b> Roark Creek	The EAST model was developed to identify and promote growth in individual students and student involvement in the community. It's not as tough or as frightening as it sounds. In fact, the first and biggest step is simply making your students aware of the communities to which they belong and the relationships they already have. We'll share with you our witches' brew of easy methods and some tips on how to apply them to your current class plan or project, without terrifying your students.



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# My Notes:

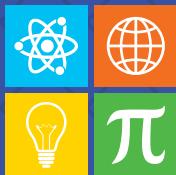




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### Branson Convention Center Wi-Fi Instructions

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2. Open browser
3. When prompted for username and password use the following: **Username:** ISEA2018  
**Password:** ISEA2018 (case sensitive)



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### ISEA STEM Expo Exhibitors

A Special Thanks:



Pittsburg State  
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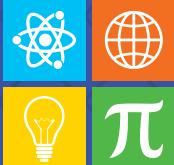
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